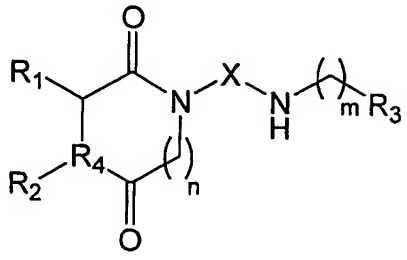
CLAIMS

1. A compound of formula I:



one of their stereochemically isomer forms or a pharmaceutically acceptable salt thereof, wherein:

R_1 and R_2 are H or are methylene groups bound together forming with the heterocyclic ring a 5- or 6- membered ring; if R_4=S then R_1 is H and R_2 is absent;

R_4 is selected from the group consisting of N and S;

n being an integrer from 0 to 1;

X is selected from the group consisting of C_2-C_{10}-alkyl, C_2-C_{10}-alkenyl and -CH_2-Y-CH_2-; wherein Y is phenyl;

m being an integrer from 1 to 2;

R_3 is selected from the group consisting of chroman-2-yl, 2-quinolyl and -O-phenyl, wherein the aromatic ring of the chromanyl moiety, the quinolyl or the phenyl residue is optionally substituted by one or more groups chosen from C_1-C_6-alkoxy, C_1-C_6-alkyl, halogen, C_2-C_6-alkenyl, halo-(C_1-C_6)-alkyl, halo-(C_1-C_6)-alkoxy, phenyl, phenyl(C_1-C_6)-alkyl, phenoxy, C_1-C_6-alkylcarbonyl, phenylcarbonyl, phenyl(C_1-C_6)alkylcarbonyl, C_1-C_6-alkoxycarbonyl, phenyl(C_1-C_6)alkoxycarbonyl, C_1-C_6-alkylcarbonylamino, hydroxy, cyano, nitro, amino, N-(C_1-C_6)-alkylamino, N,N-(C_1-C_6)-dialkylamino, carboxy, sulfo, sulfamoyl, sulfonylamino, (C_1-C_6)alkylaminosulfonyl or (C_1-C_6)alkylsulfonylamino; or wherein the phenyl ring is substituted by two neighbouring residues, which together with the phenyl ring to which they are attached form tetrahydronaphthyl; wherein each alkyl is optionally substituted with hydroxy or amino;

provided that the compound is not 2-[4-[(chroman-2-yl)methylamino]butyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole, 3-[4-[(chroman-2-yl)methylamino]butyl]-2,4-dioxothiazolidine, 3-[5-[(chroman-2-yl)methylamino]pentyl]-2,4-

dioxothiazolidine, 3-[6-[(chroman-2-yl)methylamino]hexyl]-2,4-dioxothiazolidine, 2-[4-[2-(phenoxy)ethylamino]butyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole or 3-[4-[2-(phenoxy)ethylamino]butyl]-2,4-dioxothiazolidine.

2. Compound according to claim 1, wherein R_3 is selected from the group consisting of chroman-2-yl, 2-quinolyl and -O-phenyl, wherein the phenyl residue is optionally substituted by a group chosen from C_1-C_6-alkoxy, C_1-C_6-alkyl, or halogen;

3. Compound according to claim 1 or 2, wherein m is 1 and R_3 is chroman-2-yl.

4. Compound according to claim 3, wherein R_1 and R_2 are methylene groups bound together forming with the heterocyclic ring a 5- or 6- membered ring; and R_4 is N.

5. Compound according to any of claims 3 to 4, wherein X is selected from the group consisting of C_2-C_{10}-alkyl, (*E*)-2-butenyl, 3-methylbenzyl or 4-methylbenzyl.

6. Compound according to claim 3, wherein R_1 is H, R_2 is absent and R_4 is S.

7. Compound according to claim 6, wherein n is 0 and X is C_2-C_{10}-alkyl.

8. Compound according to claim 1 or 2, wherein m=2 and R_3 is –O-phenyl, wherein the phenyl residue is optionally substituted by one or more groups chosen from C_1-C_6-alkoxy, C_1-C_6-alkyl, halogen, C_2-C_6-alkenyl, halo-(C_1-C_6)-alkyl, halo-(C_1-C_6)-alkoxy, phenyl, phenyl(C_1-C_6)-alkyl, phenoxy, C_1-C_6-alkylcarbonyl, phenylcarbonyl, phenyl(C_1-C_6)alkylcarbonyl, C_1-C_6-alkoxycarbonyl, phenyl(C_1-C_6)alkoxycarbonyl, C_1-C_6-alkylcarbonylamino, hydroxy, cyano, nitro, amino, N-(C_1-C_6)-alkylamino, N,N-(C_1-C_6)-dialkylamino, carboxy, sulfo, sulfamoyl, sulfonylamino, (C_1-C_6)alkylaminosulfonyl or (C_1-C_6)alkylsulfonylamino; or wherein the phenyl ring is substituted by two neighbouring residues, which together with the phenyl ring to which they are attached form tetrahydronaphthyl.

9. Compound according to claim 8, wherein the phenyl group is optionally substituted by one or more groups chosen from phenyl, C_1-C_6-alkoxycarbonyl,

C_1-C_6-alkylcarbonylamino, C_1-C_6-alkoxy, C_1-C_6-alkyl, halo-(C_1-C_6)-alkyl, or halogen or wherein the phenyl group is substituted by two neigbouring residues, which together with the phenyl group to which they are attached form tetrahydronaphthyl.

10. Compound according to claim 9, wherein the phenyl residue is optionally substituted by one or more groups chosen from methoxy, ethoxy, propoxy, isopropoxy, ethyl, propyl, isopropyl, bromide, trifluoromethyl, methylamide or ethoxycarbonyl.

11. Compound according to any of claims 8 to 10, wherein the phenyl group is substituted in *ortho*- and/or *meta*- position.

12. Compound according to any of claims 8 to 11, wherein R_1 and R_2 are methylene groups bound together forming with the heterocyclic ring a 5- or 6-membered ring; and R_4 is N.

13. Compound according to any of claims 8 to 12, wherein n is 0 and X is C_2-C_{10}-alkyl.

14. Compound according to any of claims 8 to 11, wherein R_1 is H and R_2 is absent and R_4 is S.

15. Compound according to claim 14, wherein n is 0 and X is C_2-C_{10}-alkyl.

16. Compound according to claims 1 or 2, wherein m is 1 and R_3 is 2-quinolyl.

17. Compound according to claim 16, wherein R_1 and R_2 are methylene groups bound together forming with the heterocyclic ring a 5- or 6- membered ring; R_4 is N.

18. Compound according to any of claims 17 to 18, wherein n is 0; and X is C_2-C_{10}-alkyl.

19. Compound according to claim 1, wherein the compound is selected from:

(a) 2-[4-[(Chroman-2(*R*)-yl)methylamino]butyl]-1,3-dioxoperhydropyrrolo[1,2-

c]imidazole;

(b) 2-[4-[(Chroman-2-yl)methylamino]butyl]-1,3-dioxoperhydroimidazo[1,5-*a*]pyridine;

(c) 2-[4-[(Chroman-2-yl)methylamino]butyl]-1,3-dioxoperhydropyrrolo[1,2-*a*]pyrazine;

(d) 2-[5-[(Chroman-2-yl)methylamino]pentyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;

(e) 2-[6-[(Chroman-2-yl)methylamino]hexyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;

(f) 2-[3-[(Chroman-2-yl)methylamino]propyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;

(g) 3-[8-[(Chroman-2-yl)methylamino]octyl]-2,4-dioxothiazolidine;

(h) 2-[4-[(Chroman-2(*S*)-yl)methylamino]butyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;

(i) 2-[8-[(Chroman-2-yl)methylamino]octyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;

(j) 2-[3-[[(Chroman-2-yl)methylamino]methyl]benzyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;

(k) 2-[4-[[(Chroman-2-yl)methylamino]methyl]benzyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;

(l) (*E*)-2-[4-[(Chroman-2-yl)methylamino]but-2-enyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;

(m) 2-[4-[2-(*o*-Methoxyphenoxy)ethylamino]butyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;

(n) 2-[4-[2-(*m*-Methoxyphenoxy)ethylamino]butyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;

(o) 2-[4-[2-(*o*-Bromophenoxy)ethylamino]butyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;

(p) 2-[4-[2-(*m*-Bromophenoxy)ethylamino]butyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;

(q) 2-[4-[2-(*o*-Ethylphenoxy)ethylamino]butyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;

(r) 2-[4-[2-(*m*-Ethylphenoxy)ethylamino]butyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;

(s) 2-[4-[2-(*o*-Isopropylphenoxy)ethylamino]butyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;

(t) 2-[4-[(2-quinolyl)methylamino]butyl]-1,3-dioxoperhydropyrrolo[1,2-

c]imidazole;
(u) 2-[4-[2-(*o*-Ethoxyphenoxy)ethylamino]butyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;
(v) 2-[4-[2-(*o*-Isopropoxyphenoxy)ethylamino]butyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;
(w) 2-[4-[2-[*m*-(Trifluoromethyl)phenoxy]ethylamino]butyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;
(x) 2-[4-[2-(1,1'-Biphenyl-2-yloxy)ethylamino]butyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;
(y) 2-[4-[2-[*o*-(Acetylamino)phenoxy]ethylamino]butyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;
(z) 2-[4-[2-[*m*-(Acetylamino)phenoxy]ethylamino]butyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;
(aa) 2-[4-[2-[*o*-(Ethoxycarbonyl)phenoxy]ethylamino]butyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;
(bb) 2-[4-[2-(5,6,7,8-Tetrahydronaphth-1-yloxy)ethylamino]butyl]-1,3-dioxoperhydropyrrolo[1,2-*c*]imidazole;
(cc) 2-[4-[2-(2,3-Dimethylphenoxy)ethylamino]butyl]-1,3-dioxoperhydropyrrolo[1,2-c]imidazole;
(dd) 2-[4-[(Chroman-2-yl)methylamino]butyl]-1,4-dioxoperhydropyrido[1,2-*a*]pyrazine;
(ee) (*Z*)-2-[4-[(Chroman-2-yl)methylamino]but-2-enyl]-1,4-dioxoperhydropyrrolo[1,2-*c*]imidazole;
(ff) 3-[4-[2-(o-Ethoxyphenoxy)ethylamino]butyl]-2,4-dioxothiazolidine;
(gg) 3-[6-[2-(*o*-Ethoxyphenoxy)ethylamino]hexyl]-2,4-dioxothiazolidine;
(hh) 3-[8-[2-(*o*-Ethoxyphenoxy)ethylamino]octyl]-2,4-dioxothiazolidine;
(ii) 2-[4-[2-(*o*-Ethoxyphenoxy)ethylamino]butyl]-1,3-dioxoperhydroimidazo[1,5-*a*]pyridine;
(jj) 2-[6-[2-(*o*-Ethoxyphenoxy)ethylamino]hexyl]-1,3-dioxoperhydroimidazo[1,5-*a*]pyridine;
(kk) 2-[4-[(2-Quinolyl)methylamino]butyl]-1,3-dioxoperhydroimidazo[1,5-*a*]pyridine;
(ll) 2-[6-[(2-Quinolyl)methylamino]hexyl]-1,3-dioxoperhydroimidazo[1,5-*a*]pyridine;

a pharmaceutically acceptable salt or one of their stereochemically isomer forms.

20. Pharmaceutical composition which comprises a therapeutically effective amount of a compound as claimed in any of claims 1 to 19 and, pharmaceutically acceptable carriers.

21. Use of a compound of any of claims 1 to 19 for the preparation of a medicament for the treatment and/or prophylasis of pathological states in which 5-HT_{1A} agonists are indicated.

22. The use according to claim 21 in the preparation of a medicament for the treatment and/or prophylasis of Parkinson Disease, cerebral damage by thromboembolic ictus, craneoencephalic traumatisms, depression, migraine, pain, psychosis, anxiety disorders, aggressive disorders or urinary tract disorders.